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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/990,723	11/21/2001	Roy P. McMahon	R98152	5337
7590 11/17/2003			EXAMINER	
Raytheon Company			· MAYO III, WILLIAM H	
Bldg. EO/E01/E150 2000 East El Segundo Boulevard			ART UNIT	PAPER NUMBER
P.O. Box 902			2831	
El Segundo, C.	A 90245	•	DATE MAH ED 11/13/000	

DATE MAILED: 11/17/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

	T				
	Applicati n N .	Applicant(s)			
Office Action Comments	09/990,723	MCMAHON, ROY P.			
Office Action Summary	Examin r	Art Unit			
	William H. Mayo III	2831			
The MAILING DATE of this communication Period for Reply	appears on the cover sheet with	h the correspond nce address			
A SHORTENED STATUTORY PERIOD FOR REI THE MAILING DATE OF THIS COMMUNICATIO - Extensions of time may be available under the provisions of 37 CFR after SIX (6) MONTHS from the mailing date of this communication. - If the period for reply specified above is less than thirty (30) days, a - If NO period for reply is specified above, the maximum statutory per - Failure to reply within the set or extended period for reply will, by sta - Any reply received by the Office later than three months after the may earned patent term adjustment. See 37 CFR 1.704(b). Status	N 1.136(a). In no event, however, may a repreply within the statutory minimum of thirty iod will apply and will expire SIX (6) MONTI tute, cause the application to become ABA	oly be timely filed (30) days will be considered timely. HS from the mailing date of this communication. NDONED (35 U.S.C. § 133).			
1) Responsive to communication(s) filed on 09	September 2003.				
2a) ☐ This action is FINAL . 2b) ☒ Th	nis action is non-final.				
3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11, 453 O.G. 213.					
Disposition of Claims					
4)⊠ Claim(s) <u>1-7,9-20,24,25 and 27-33</u> is/are pe	ending in the application.				
4a) Of the above claim(s) is/are withdrawn from consideration.					
5) Claim(s) is/are allowed.					
6) Claim(s) <u>1-7,9-20,24,25 and 27-33</u> is/are re	jected.				
7) Claim(s) is/are objected to.					
8) Claim(s) are subject to restriction and	d/or election requirement.				
Application Papers					
9)☐ The specification is objected to by the Examiner. 10)☐ The drawing(s) filed on is/are: a)☐ accepted or b)☐ objected to by the Examiner.					
Applicant may not request that any objection to t	• •				
Replacement drawing sheet(s) including the con		• •			
11) The oath or declaration is objected to by the	= '				
Priority under 35 U.S.C. §§ 119 and 120					
12) Acknowledgment is made of a claim for fore	eign priority under 35 U.S.C. §	119(a)-(d) or (f).			
a) ☐ All b) ☐ Some * c) ☐ None of:					
 Certified copies of the priority documents have been received. Certified copies of the priority documents have been received in Application No 					
3. Copies of the certified copies of the priority documents have been received in this National Stage					
application from the International Bur * See the attached detailed Office action for a l		pagivad			
13) Acknowledgment is made of a claim for dome since a specific reference was included in the	estic priority under 35 U.S.C. §	119(e) (to a provisional application)			
37 CFR 1.78. a) ☐ The translation of the foreign language	provisional application has bee	en received.			
14) Acknowledgment is made of a claim for dome reference was included in the first sentence or	estic priority under 35 U.S.C. §	§ 120 and/or 121 since a specific			
Attachment(s)					
1) Notice of References Cited (PTO-892)	4) 🔲 Interview Su	mmary (PTO-413) Paper No(s)			
2) Notice of Draftsperson's Patent Drawing Review (PTO-948) 3) Information Disclosure Statement(s) (PTO-1449) Paper No(s	5) Notice of Info	ormal Patent Application (PTO-152)			
U.S. Patent and Trademark Office PTOL-326 (Rev. 11-03) Office	Action Summary	Part of Paper No. 9			



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DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on June 4, 2003, has been entered.

Information Disclosure Statement

2. The information disclosure statement filed September 9, 2003 has been submitted for consideration by the Office. It has been placed in the application file and the information referred to therein has been considered.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

- (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
- 4. Claim 29 is rejected under 35 U.S.C. 102(b) as being anticipated by Griffin (Pat Num 5,864,094). Griffin discloses an electrical cable (Figs 1-4) having a local



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longitudinal axis (center of cable) useful in supplying AC electrical power to audio equipment (Col 1, lines 51-53). Specifically, with respect to claim 29, Griffin discloses an electrical cable (Fig 2) electrical cable (Figs 1-4) having a local longitudinal axis (center of cable) comprising a central conductor structure (i.e. coaxial cable positioned in the center of the cable) that has an electrically conducting central conductor (52), a layer of central conductor insulation (54) overlying the central conductor (52), and an electrically conducing central conductor shield (56) overlying the layer of central conductor insulation (54), wherein the cable (Fig 2) comprises a plurality of spiral conductor structures (60, 62) overlying and spirally wrapped around the central conductor structure (center coaxial cable, see Fig 3), wherein each of the spiral conductor structures (20, as shown in Fig 4) comprises an electrical conducting spiral conductor (25, Col 4, lines 30-35), a spiral conductor insulation (24) overlying the spiral conductor (20), wherein each spiral conductor structure (20) has no electrically conducting shielding and wherein each spiral conductor (60, 62) retains a same pair of circumferentially adjacent other spiral conductor structure (adjacent 60 & 62's) along the length of the cable (50, Fig 3) and wherein each spiral conductor structure (60, 62) has a designated identity (line and neutral conductors respectively), and wherein the circumferential arrangement of each spiral conductor (60, 62) is selected responsive to its designated identity (line and neutral conductors) and to the designated identities of each pair of circumferentially adjacent spiral conductor structures (adjacent 60 & 62's, Cols 3 & 5, lines 49-53 & 20-42, respectively), and wherein the cable (50) further comprises an electrically conducting outer shield (72) overlying the plurality of spiral

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conductors (60, 62, Fig 2) and an outer insulation (74) overlying the electrically conducting outer shield (72).

Claim Rejections - 35 USC § 103

- 5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:
 - (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.
- 6. Claims 1-6, 9, 11-14, 17-18, 20, 24-25, 27-28, and 30-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Griffin (Pat Num 5,864,094) in view of Applicant's Own Admission of Prior Art (herein referred to as AOAPA). Griffin discloses an electrical cable (Figs 1-4) having a local longitudinal axis (center of cable) useful in supplying AC electrical power to audio equipment (Col 1, lines 51-53). Griffin discloses an electrical cable (Figs 1-4) having a local longitudinal axis (center of cable) useful in supplying AC electrical power to audio equipment (Col 1, lines 51-53). With respect to claim 1, Griffin discloses an electrical cable (Figs 1-4) comprising a central conductor structure (i.e. coaxial cable positioned in the center of the cable) that has an electrically conducting central conductor (52), a layer of central conductor insulation (54) overlying the central conductor (52), and an electrically conducing central conductor shield (56) overlying the layer of central conductor insulation (54), wherein the cable (Fig 2) comprises a plurality of spiral conductor structures (60, 62) overlying and spirally

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wrapped around the central conductor structure and have no conducting shield (center coaxial cable, see Fig 3) and has a plurality of spiral conductor structures (60, 62) overlying and spirally wrapped around the central conductor structure (center coaxial cable, see Fig 3), wherein each spiral conductor (60, 62) retains a same pair of circumferentially adjacent other spiral conductor structure (adjacent 60 & 62's) along the length of the cable (50, Fig 3) and wherein each of the spiral conductor structures (20, as shown in Fig 4) comprises an electrical conducting spiral conductor (25, Col 4, lines 30-35), a spiral conductor insulation (24) overlying the spiral conductor (20), wherein each spiral conductor structure (20) has no electrically conducting shielding thereon. and wherein the cable (50) further comprises an electrically conducting outer shield (72) overlying the plurality of spiral conductors (60, 62, Fig 2) and an outer insulation (74) overlying the electrically conducting outer shield (72). With respect to claim 2, Griffin discloses that the electrical cable (50) is substantially circular viewed in cross section perpendicular to the local longitudinally axis (center of cable, Fig 2). With respect to claim 3, Griffin discloses that the center conductor (52) may be a plurality of electrical conducting central conductor wires (Col 5, lines 59-62). With respect to claim 4, Griffin discloses that the central conductor structure (center coaxial cable) is a coaxial wire structure (Fig 2). With respect to claim 5, Griffin discloses that the spiral conductor (20 as shown in Fig 4) comprises a plurality of electrically conducting spiral conductor wires (25). With respect to claim 6, Griffin discloses that the plurality of spiral conductor structures are each of the substantially the same diameter (Fig 2, Col 6, lines 16-19). With respect to claim 9, Griffin discloses that each spiral conductor structure (60, 62)

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has a designated identity (line and neutral conductors respectively), wherein the circumferential arrangement of each spiral conductor (60, 62) is selected responsive to its designated identity (line and neutral conductors) and to the designated identities of each pair of circumferentially adjacent spiral conductor structures (adjacent 60 & 62's, Cols 3 & 5, lines 49-53 & 20-42, respectively). With respect to claim 11, Griffin discloses an electrical cable (Fig 2) electrical cable (Figs 1-4) comprising a central conductor structure (i.e. coaxial cable positioned in the center of the cable) that has an electrically conducting central conductor (52), a layer of central conductor insulation (54) overlying the central conductor (52), and an electrically conducing central conductor shield (56) overlying the layer of central conductor insulation (54), wherein the cable (Fig 2) comprises a plurality of spiral conductor structures (60, 62) overlying and spirally wrapped around the central conductor structure (center coaxial cable, see Fig 3), wherein each of the spiral conductor structures (20, as shown in Fig 4) comprises an electrical conducting spiral conductor (25, Col 4, lines 30-35), a spiral conductor insulation (24) overlying the spiral conductor (20), wherein each spiral conductor structure (20) has no electrically conducting shielding and wherein each spiral conductor (60, 62) retains a same pair of circumferentially adjacent other spiral conductor structure (adjacent 60 & 62's) along the length of the cable (50, Fig 3) and wherein each spiral conductor structure (60, 62) has a designated identity (line and neutral conductors respectively), and wherein the circumferential arrangement of each spiral conductor (60, 62) is selected responsive to its designated identity (line and neutral conductors) and to the designated identities of each pair of circumferentially

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adjacent spiral conductor structures (adjacent 60 & 62's, Cols 3 & 5, lines 49-53 & 20-42, respectively), and wherein the cable (50) further comprises an electrically conducting outer shield (72) overlying the plurality of spiral conductors (60, 62, Fig 2) and an outer insulation (74) overlying the electrically conducting outer shield (72), wherein the electrical cable (50) is substantially circular viewed in cross section perpendicular to the local longitudinally axis (center of cable, Fig 2). With respect to claim 12, Griffin discloses that the center conductor (52) may be a plurality of electrical conducting central conductor wires (Col 5, lines 59-62). With respect to claim 13, Griffin discloses that the spiral conductor (20 as shown in Fig 4) comprises a plurality of electrically conducting spiral conductor wires (25). With respect to claim 14, Griffin discloses that the plurality of spiral conductor structures are each of the substantially the same diameter (Fig 2, Col 6, lines 16-19). With respect to claim 17, Griffin discloses a method of preparing an electrical cable (Figs 1-4) comprising the steps of providing a central conductor structure (i.e. coaxial cable positioned in the center of the cable) that has an electrically conducting central conductor (52), a layer of central conductor insulation (54) overlying the central conductor (52), and an electrically conducing central conductor shield (56) overlying the layer of central conductor insulation (54), providing a plurality of spiral conductor structures (60, 62) overlying and spirally wrapped around the central conductor structure (center coaxial cable, see Fig 3), wherein each of the spiral conductor structures (20, as shown in Fig 4) comprises an electrical conducting spiral conductor (25, Col 4, lines 30-35), a spiral conductor insulation (24) overlying the spiral conductor (20), wherein each spiral conductor structure (20) has no electrically

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conducting shielding thereon, selecting a circumferential arrangement of each spiral conductor (60, 62) responsive to its designated identity and to the designated identities of each of a pair of circumferentially adjacent spiral conductor structures along a length of the cable (50), placing an electrically conducting outer shield (72) overlying the plurality of spiral conductors (60, 62, Fig 2) placing an outer insulation (74) overlying the electrically conducting outer shield (72) to form the cable (50) having a local longitudinal axis (center of cable, Cols 3 & 5, lines 49-53 & 20-42, respectively). With respect to claim 18, Griffin discloses a method of preparing an electrical cable (50), wherein the plurality of spiral conductor structures are each of the substantially the same diameter (Fig 2, Col 6, lines 16-19). With respect to claim 20, Griffin discloses a method of preparing an electrical cable (50), wherein the electrical cable (50) is substantially circular viewed in cross section perpendicular to the local longitudinally axis (center of cable, Fig 2). With respect to claim 17, Griffin discloses a method of preparing an electrical cable (Figs 1-4) comprising the steps of providing a central conductor structure (i.e. coaxial cable positioned in the center of the cable) that has an electrically conducting central conductor (52), a layer of central conductor insulation (54) overlying the central conductor (52), and an electrically conducing central conductor shield (56) overlying the layer of central conductor insulation (54), providing a plurality of spiral conductor structures (60, 62) each having a designated identity (line and neutral conductors respectively), and comprising an electrical conducting spiral conductor (25, Col 4, lines 30-35), a spiral conductor insulation (24) overlying the spiral conductor (20), wherein each spiral conductor structure (20) has no electrically conducting shielding

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thereon, selecting a circumferential arrangement of each spiral conductor (60, 62) responsive to its designated identity (i.e. line and neutral conductors) and to the designated identities of each of a pair of circumferentially adjacent spiral conductor structures along a length of the cable (50, neutral and line conductors alternate), placing an electrically conducting outer shield (72) overlying the plurality of spiral conductors (60, 62, Fig 2) placing an outer insulation (74) overlying the electrically conducting outer shield (72) to form the cable (50) having a local longitudinal axis (center of cable, Cols 3 & 5, lines 49-53 & 20-42, respectively). With respect to claim 28, Griffin discloses a method of providing a plurality of spiral conductor structures (60, 62) overlying and spirally wrapped around the central conductor structure (center coaxial cable, see Fig 3). With respect to claim 30, Griffin discloses an electrical cable (Fig 2) electrical cable (Figs 1-4) having a local longitudinal axis (center of cable) comprising a central conductor structure (i.e. coaxial cable positioned in the center of the cable) that has an electrically conducting central conductor (52), a layer of central conductor insulation (54) overlying the central conductor (52), and an electrically conducing central conductor shield (56) overlying the layer of central conductor insulation (54), wherein the cable (Fig 2) comprises a plurality of spiral conductor structures (60, 62) overlying and spirally wrapped around the central conductor structure (center coaxial cable, see Fig 3), wherein each of the spiral conductor structures (20, as shown in Fig 4) comprises an electrical conducting spiral conductor (25, Col 4, lines 30-35), a spiral conductor insulation (24) overlying the spiral conductor (20), wherein each spiral conductor structure (20) has no electrically conducting

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shielding and wherein each spiral conductor (60, 62) retains a same pair of circumferentially adjacent other spiral conductor structure (adjacent 60 & 62's) along the length of the cable (50, Fig 3) and wherein each spiral conductor structure (60, 62) has a designated identity (line and neutral conductors respectively), and wherein the circumferential arrangement of each spiral conductor (60, 62) is selected responsive to its designated identity (line and neutral conductors) and to the designated identities of each pair of circumferentially adjacent spiral conductor structures (adjacent 60 & 62's, Cols 3 & 5, lines 49-53 & 20-42, respectively), and wherein the cable (50) further comprises an electrically conducting outer shield (72) overlying the plurality of spiral conductors (60, 62, Fig 2) and an outer insulation (74) overlying the electrically conducting outer shield (72). With respect to claim 31, Griffin discloses that each spiral conductor (60, 62) retains a same pair of circumferentially adjacent other spiral conductor structure (adjacent 60 & 62's) along the length of the cable (50, Fig 3).

However, Griffin doesn't necessarily disclose at least one of the spiral conductor structures having a signal carrying identity wherein at least some of the spiral conductor structures having different signal carrying identities and wherein at least some of the spiral conductor structures being arranged responsive to cross-talk threat between various spiral conductor structures (claim 1), nor at least one of the spiral conductor structures having a signal carrying identity (claim 11), nor the step of selecting includes the step of arranging the spiral conductor responsive to a power carried by each spiral conductor structure and responsive to the power carried by circumferentially adjacent pair of spiral conductor structures (claims 17 & 27), nor at least some of the spiral

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conductor structures having an identity selected to a designed carried signal selected from the group consisting of video, audio, power, telephone, data, or control signals (claims 24, 28, & 33), nor the electrical cable being a component of in flight entertainment system (claim 25), nor the circumferential positioning of the spiral conductors relative to each other being responsive to a signal carried by each other spiral conductor structure (claims 30 & 32).

AAOPA teaches, under the heading Background of The Invention, electrical cables that are known and that carry a number of different types of electrical signals (Page 2, lines 13-17). Specifically, with respect to claims 1, 11, 17, and 27, AOAPA teaches an known electrical cable and a method of making such, wherein the cable is for usage with a in flight entertainment (IFE) system in an airliner wherein at least one of the conductor structures having different signal carrying identities (i.e. video, audio, power, telephone, data, or control signal identity (Page 2, lines 16-20), wherein AOAPA teaches that it is well known to arrange conductor structures with response to cross-talk threat between various adjacent conductor structures by assigning specific conductors to specific positions in order to minimize the coupling of the conductors and the possibility of cross-talk (Page 1, lines 23-28). With respect to claims 24-25, 28, & 33, AOAPA teaches an known electrical cable for usage with a in flight entertainment (IFE) system in an airliner wherein at least one of the conductor structures having different signal carrying identities (i.e. video, audio, power, telephone, data, or control signal identity (Page 2, lines 16-20). With respect to claims 30 & 32, AOAPA teaches that it is well known to arrange conductor structures with response to cross-talk threat between

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various adjacent conductor structures by assigning specific conductors to specific positions in order to minimize the coupling of the conductors and the possibility of crosstalk (Page 1, lines 23-28).

With respect to claims 1, 11, 17, 24-28 and 30-33, it would have been obvious to one having ordinary skill in the art of cables at the time the invention was made to modify the cable of Griffin to comprise at least one or more signal conductor configuration as taught by AOAPA because AOAPA teaches that such a configuration reduces the possibility of cross talk and minimizes the coupling of adjacent conductors (Page 1, lines 23-28) and are well known in the art for usage with a in flight entertainment (IFE) system in an airliner wherein at least one of the conductor structures having different signal carrying identities (i.e. video, audio, power, telephone, data, or control signal identity (Page 2, lines 16-20) and it appears that Griffin would perform with or without the modification.

7. Claims 7, 10, 15-16, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Griffin (Pat Num 5,864,094) in view of Applicant's Own Admission of Prior Art (herein referred to as modified Griffin) as applied to claims 1, 11, and 17 above, and further in view of Hansen et al (Pat Num 3,829,603, herein referred to as Hansen). Modified Griffin discloses an electrical cable (Figs 1-4) having a local longitudinal axis (center of cable) useful in supplying AC electrical power to audio equipment (Col 1, lines 51-53) as disclosed above with reference to claims 1, 11, & 17 above.

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However, modified Griffin doesn't necessarily disclose the plurality of spiral conductors structures having different diameters (claims 7, 15, & 19), nor the cable comprising a spiral spacer structure spirally wrapped around the central conductor and lying between two spiral conductor structures in side by side relationship (claims 10 & 16).

Hansen teaches an electrical cable (Figs 1-2) having increased flexibility (Col 1, lines 20-23). Specifically, with respect to claims 7 & 15, Hansen teaches an electrical cable (10) having a plurality of spiral conductors (17-19 & 31-33, i.e. power conductors and ground conductors respectively), wherein the plurality of spiral conductors (17-19 & 31-33) have different diameters (Fig 1). With respect to claim 10 & 16, Hansen teaches that a spiral spacer (27) is spiral wrapped around a central conductor structure (26), wherein the spiral spaces (27-29) are positioned between two spiral conductors (15 & 31) in a side-by-side relationship (Fig 1). With respect to claim 19, Hansen teaches a method wherein at least some of the plurality of spiral conductors (17-19 & 31-33) has different diameters (Fig 1).

With respect to claims 7, 15, & 19, it would have been obvious to one having ordinary skill in the art of cables at the time the invention was made to modify the plurality of spiral conductors of Griffin to comprise at least some of the plurality of spiral conductors having different diameters as taught by Hansen because Hansen teaches that such a configuration provides an electrical cable having increased flexibility (Col 1, lines 20-23) and since it has been held that such a modification would have involved a

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mere change in size of a component and a change of size is generally recognized as being within the ordinary skill in the art. *In re Rose, 105 USPQ 237 (CCPA 1955)*.

With respect to claims 7, 15, & 19, it would have been obvious to one having ordinary skill in the art of cables at the time the invention was made to modify the plurality of spiral conductors of Griffin to comprise spiral spaces positioned between two spiral conductors as taught by Hansen because Hansen teaches that such a configuration provides an electrical cable having increased flexibility (Col 1, lines 20-23).

Response to Arguments

8. The applicant failed to submit new arguments in paper number 8 dated September 8, 2003. It should be understood that the applicant should submit an argument under the heading "Remarks" pointing out disagreements with the examiner's contentions. Applicant must also discuss the references applied against the claims, explaining how the claims avoid the references or distinguish from them.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. They are Kim (Pat Num 6,128,117), Shatas (Pat Num 5,504,540), and Asprey et al (Pat Num 5,268,676), all of which disclose electrical cables having several configurations.

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Communication

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to William H. Mayo III whose telephone number is (703) 306-9061. The examiner can normally be reached on M-F 8:30am-6:00 pm (alternate Fridays off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dean Reichard can be reached on (703) 308-3682. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-3432 for regular communications and (703) 305-3431 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

November 5, 2003